	Doc #1	Doc #2	...	Doc #n
able	1	0	...	1
acid	0	2	...	0
...	...	...	...	...
\<term m\>	1	0		1

FIGURE 1 Term by Document Matrix

| Term vs. Doc Matrix | | Term Columns | X | Singular Matrix | X | Doc Columns |
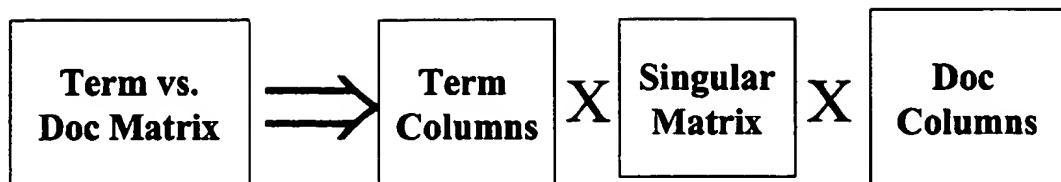
SVD Extracts Key Relationships among Terms - Basis for Conceptual Matching

FIGURE 2 – Singular Value Decomposition (SVD) Operation

Large, Sparse Matrix   LSI Vector Space

Typically, N= Several Hundred
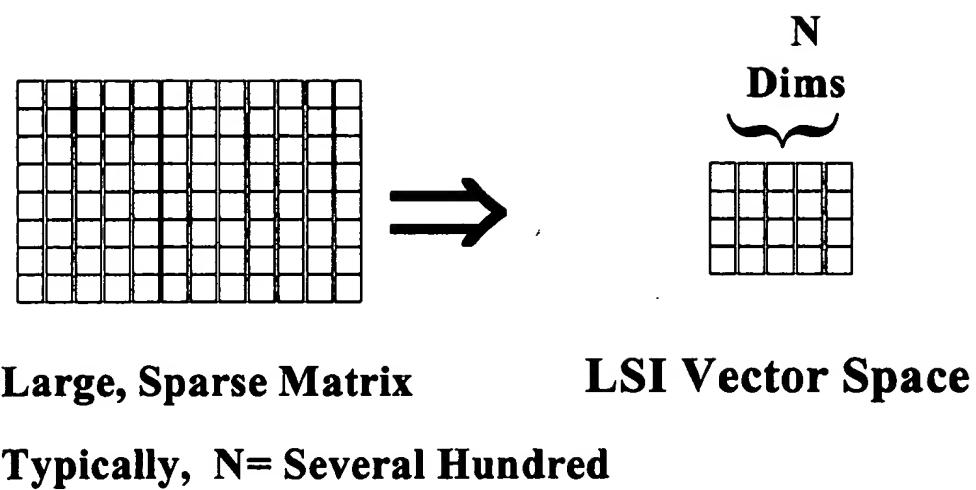
FIGURE 3 – Dimensionality Reduction

FIGURE 4

```
                    ┌─────────────────────┐
                    │   Original Query    │
                    └─────────────────────┘
                              │
              ┌───────────────┼───────────────────────────────────┐
              │               ▼                                    │
              │   ┌─────────────────────┐                          │
              │   │  Generalized Entity │   310                    │
              │   │ Generator and Selector │                       │
              │   └─────────────────────┘                          │
              │               │                                    │
              │               ▼                                    │
              │   ┌─────────────────────┐                          │
              │   │  Query formed from  │   320                    │
              │   │ Generalized Entities│                          │
              │   └─────────────────────┘                          │
              │                                                    │
              │       ┌──────────────┐                             │
              │       │     LSI      │   330                       │
              │       └──────────────┘                             │
              │                                                    │
              │   ┌─────────────────────┐                          │
              │   │  Ordered List of Best│  340                    │
              │   │ Matching Documents  │                          │
              │   └─────────────────────┘                          │
              │               │                                    │
              │               ▼                                    │
              │   ┌─────────────────────┐                          │
              │   │  Generalized Entity │   350                    │
              │   │   Post-processing   │                          │
              │   └─────────────────────┘                          │
              │               │                              380   │
              │               ▼                                    │
  360   ┌─────────────────────────┐      ┌─────────────────────┐   │
        │  Alternative ranking of │      │ Selecting documents or │ │
        │ documents using general │─────▶│   their fragments    │◀─┘
        │ entities and their frequencies │└─────────────────────┘
        └─────────────────────────┘                 ▲
                    │                                │
                    ▼                                │
  370   ┌─────────────────────┐                      │
        │ Evaluation of results│─────────────────────┘
        └─────────────────────┘
                    │
                    ▼
              ┌──────────┐
              │   STOP   │
              └──────────┘
```